Scanning the issues

Perception of remote data: needed—a theory explaining the phenomenon

For more than a hundred years, scientists have attempted to determine the truth or falsity of claims for the existence of a perceptual channel whereby certain individuals are able to perceive and describe remote data not presented to any known sense. And for the past three years, a program in the Electronics and Bioengineering Laboratory of Stanford Research Institute (SRI), Menlo Park, Calif., has been underway to investigate those characteristics of human perception that appear to fall outside the range of well-understood perceptual/processing capabilities.

The March issue of the *Proceedings of the IEEE* includes a paper by two scientists from that institute, which presents an outline of the history of scientific inquiry into such so-called paranormal perception and surveys the current state of the art in parapsychological research in the United States and overseas.

Of particular interest to the authors is a human information-accessing capability, which they call "remote viewing," and which pertains to the ability of certain individuals to access and describe, by means of mental processes, information sources blocked from ordinary perception, and generally accepted as secure against such access.

For example, the authors have extensively investigated the ability of a subject to view remote geographical locations up to a distance of several thousand kilometers from the subject's physical location, given only a known person on whom to target. They also have carried out more than 50 experiments under what they define as "controlled laboratory conditions" with several individuals whose remote perceptual abilities have been developed sufficiently to allow them at times to describe correctly—often in great detail—geographical or technical material such as buildings, roads, laboratory apparatus, and the like.

What are the major findings from these experiments? The authors claim that, first of all, they have established that it is possible to obtain significant amounts of accurate descriptive information about remote locations. Also, the remote viewing phenomenon was not found to be a sensitive function of distance (an increase in the distance separating the subject from the scene to be perceived from a few meters up to 4000 km did not in any apparent way degrade the quality or accuracy of perception). Another important finding is that the use of Faraday-cage electrical shielding did not prevent high-quality descriptions from being obtained. The authors maintain that, based on their data, both specially selected and unselected persons can be assisted in developing remote perceptual abilities up to a level of useful information transfer.

In their experiments, the authors went even one step further than just examining the phenomenon of remote viewing in space. They report that during the course of the experimentation in spatial remote viewing, subjects occasionally volunteered the information that they had been thinking about their forthcoming participation in a remote-viewing experiment and had had an image come to them as to what the target location was to be. With that motivation, the authors set out to conduct "very well controlled experiments" to determine whether they could deliberately design and execute experiments for the sole purpose of observing such "precognition" (temporal remote viewing) phenomena. (In these experiments, the subject was required to describe the remote location before the target was actually selected!)

Although these experiments were regarded by the authors as successful, an explanation for this phenomenon, as well as for spatial remote viewing, is not easily found, as the authors themselves indicate: "Currently, we have no precise model of this spatial and temporal remote viewing phenomenon." However, they claim that these phenomena are "not at all inconsistent with the framework of physics as currently understood." For example, one hypothesis for explaining remote viewing is that information transfer under conditions of sensory shielding is mediated by electromagnetic waves of extremely low frequency (wavelengths in the 300- to 1000-km region). The time reversibility—that is, effects (e.g., observations) apparently preceding causes (e.g. events)—may be explained, according to the authors, in terms of "advanced" potential, a legitimate solution of the electromagnetic wave propagation equations that is conventionally discarded (in contrast to the generally accepted "retarded" potential solution) as "not corresponding to any observable physical event." Quantum theory and information theory are other disciplines mentioned by the authors, where explanations for the observed phenomena may be sought. (H. E. Puthoff and R. Targ, "A perceptual channel for information transfer over kilometer distances: historical perspective and recent research," *Proceedings of the IEEE*, Mar. 1976.)—*G.K.*

On lasers—devices and applications. The Fifth Biannual Conference on Laser Engineering and Applications (CLEA) in Washington, D.C., May 28–30, 1975 (jointly sponsored by the IEEE and the Optical Society of America) featured a well-balanced program of 175 papers on laser devices and applications. Of these, 32 were invited papers on far-ranging subjects, including special talks on the relevance of lasers in the energy shortage by Edward Teller, and on optical communications in perspective by R. Kompfner. Thirty additional postdeadline papers were also presented. However, the special February issue of the *IEEE Journal of Quantum Electronics*, devoted to that conference, contains only 12 of the papers presented at the meeting; these were the papers subsequently submitted for a full review according to the procedures required by the journal.

One of the topics addressed in the issue is the use of lasers for welding of materials with high reflectivity. Such welding—in particular, that of thin foils of highly reflective metals to any baseplate—has proved difficult due to the high intensity required to overcome the reflective losses. The authors of that paper claim that independence of material surface properties and its reflecting behavior can be achieved if the laser output consists of a high-intensity first spike followed by an emission adapted to the welding process. According to the authors, this type of laser emission, called "fundamental-mode laser pulses," can be optimized for particular weld and material properties. (M. Montanarini and J. Steffen, "Investigations on laser welding," from a Special Issue on the Fifth Biannual Conference on Laser Engineering and Applications. *IEEE Journal of Quantum Electronics*, Feb. 1976.)—*G.K.*

Acoustooptics revisited—a three-part comprehensive review. Since the emergence of the field of acoustooptic interactions involving incoherent optics and sonic waves during the 1920s and 1930s, research interest in such interactions has increased steadily—resulting in many practical devices using light diffraction and modulation, and in optical probing of sound waves in gases, liquids, and solids.

January's *Transactions on Sonics and Ultrasonics* contains three articles designed to cover the broad and mature, but expanding, field of acoustooptic interactions and to provide up-to-date reviews of important aspects of this important subject.

The first paper under discussion—by I. C. Chang of the Applied Technology Division, Itek Corp.—gives a concise review of the basic principle of acoustooptic interactions in anisotropic media using a coupled-wave analysis.

The second paper, by R. V. Schmidt of Bell Labs, includes an introduction to the uniqueness and characteristics of thin-film acoustooptic devices.

G. I. Stegeman, a professor at the University of Toronto, is the author of the third paper, which serves as a brief review of the basic principles and a survey of the state of the art in optical probing techniques and applications. (Acoustooptic interactions—a review, *IEEE Transactions on Sonics and Ultrasonics*, Jan. 1976.)—*M.E.* B